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# keeping your cool about propane refrigerators



Ministry of  
Consumer and  
Commercial  
Relations  
Ontario



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A poorly maintained propane refrigerator represents a serious health hazard to anyone occupying the home or cottage in which it is installed. If not properly adjusted, the flame can produce enough carbon monoxide in one night to kill cottage occupants.

The Fuels Safety Branch of the Ministry of Consumer and Commercial Relations strongly recommends that propane refrigerators be professionally cleaned and inspected annually, at the beginning of each cottage season.

At the same time, it is recognized that this may be very costly or impractical in the remote areas where propane refrigerators tend to be most popular.

For this reason, the Fuels Safety Branch has produced this information brochure, detailing the proper procedures for cleaning and maintaining propane refrigerators. If you choose to take care of your refrigerator yourself, please read this booklet thoroughly before beginning, allow yourself enough time to do the job carefully and follow the steps one by one.

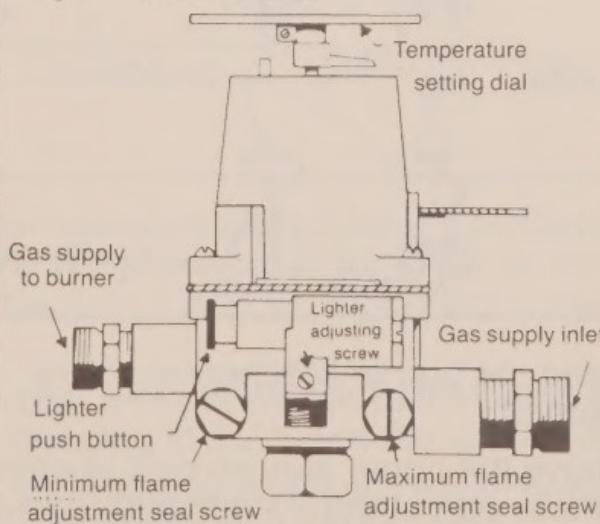
If you run into any difficulties, call in a professional propane fitter. Your propane dealer can provide you with the names of local registered tradespeople.

### **Remember . . . with propane appliances, carelessness can be deadly.**

Proper servicing of a propane refrigerator takes about three hours.

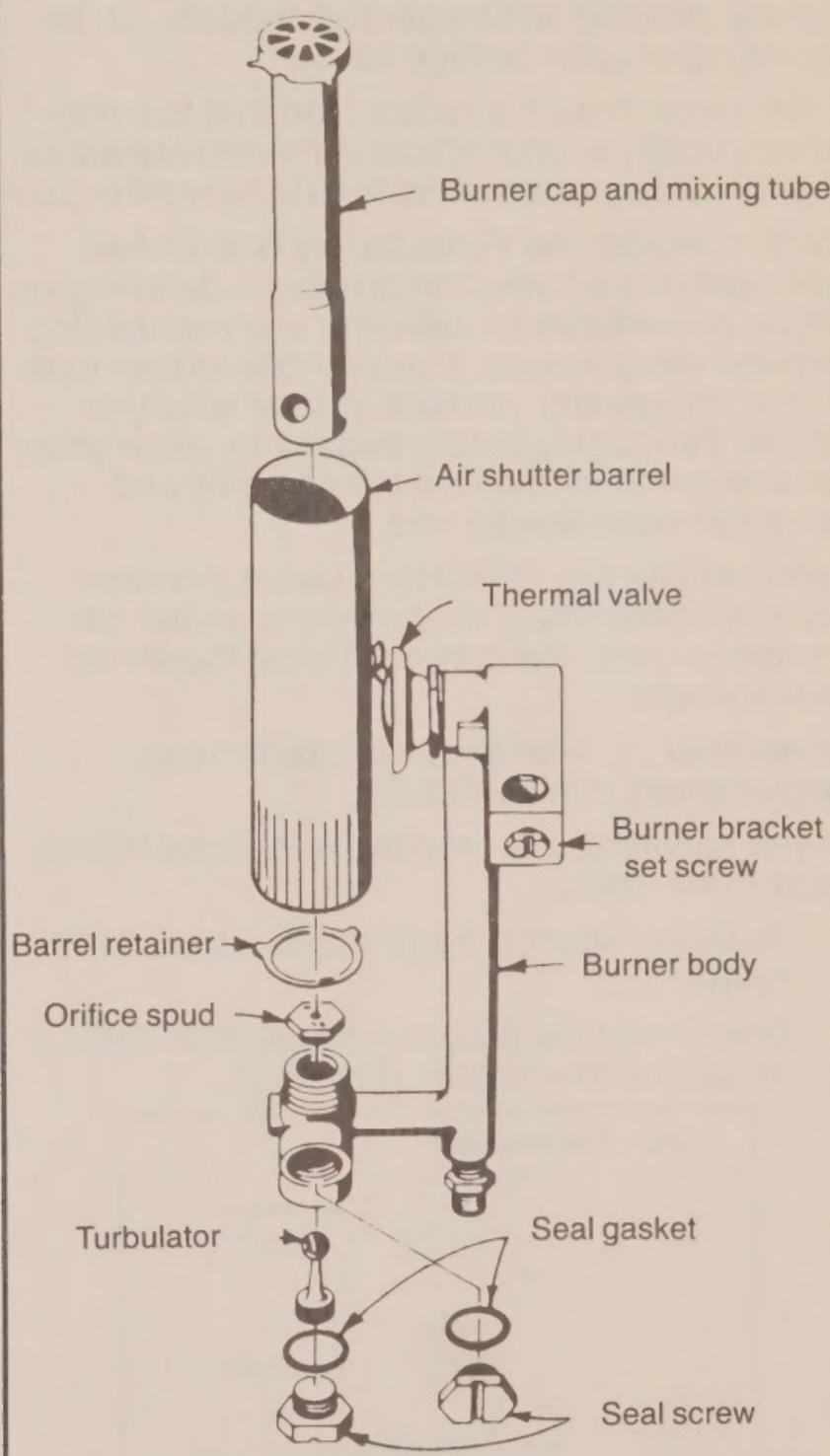
1. To begin, shut off the propane supply at the cylinder(s).
2. Disconnect the propane supply line where it meets the thermostat. (Figure 1)

Figure 1 Thermostat



3. Pull the refrigerator away from the wall to permit access to the back.
4. Remove the large back cover panel and the grill from the top of the refrigerator.
5. Disconnect, at the burner, the propane line which connects the thermostat to the burner.

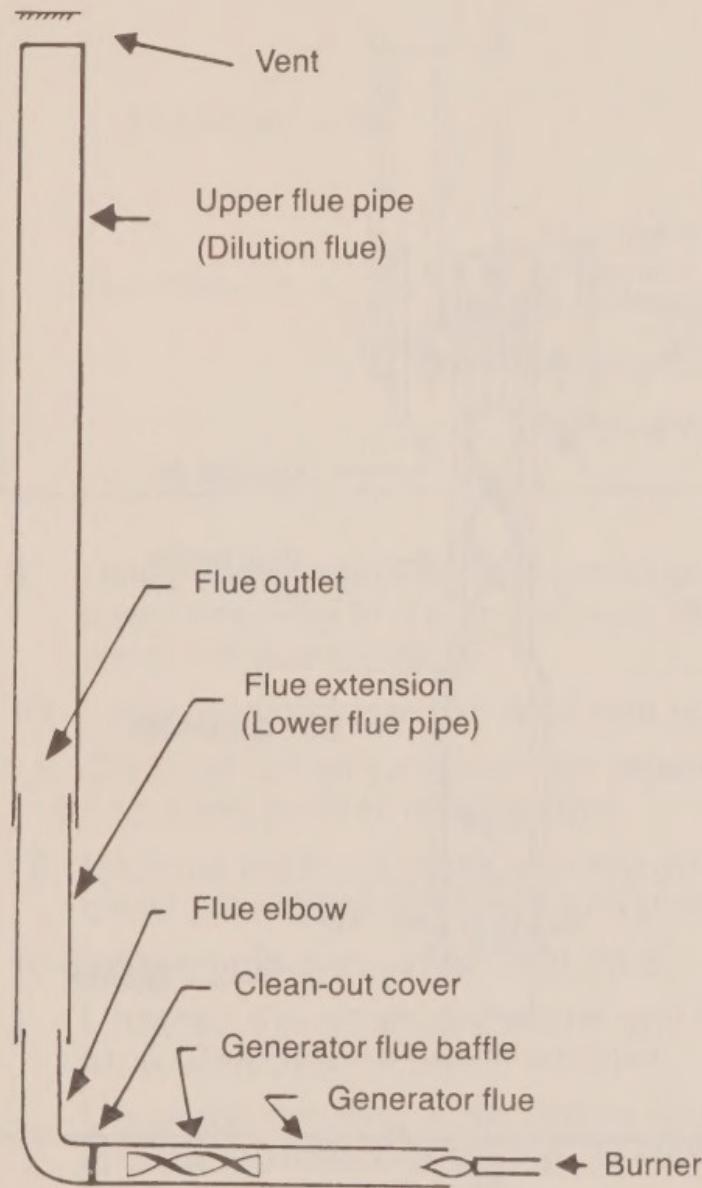
Figure 2 **Expanded view of burner**



6. Loosen the burner bracket set screw. (Figure 2)
7. Remove the upper flue, an oval-shaped asbestos part about 30 inches (760mm)

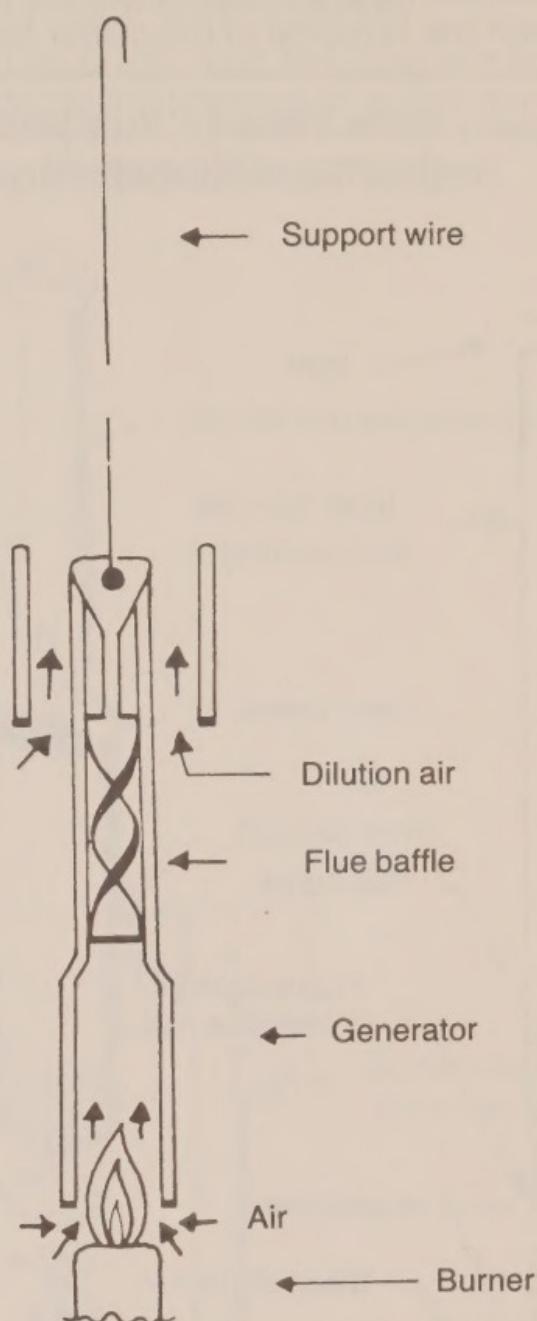
long, at the back upper right side, as viewed from the back. In many refrigerators, a flue baffle is attached by a wire to this upper flue and will be withdrawn from the flue passage with the removal of the upper flue. (Figure 3)

Figure 3 **Side view of flue passage (horizontal burner)**



8. All refrigerators should have a baffle located in the flue passage, which must be removed in cleaning. It may be supported in the flue by:
  - a long wire connected to the baffle and extending to the top of the upper flue, or
  - a short wire or metal link either hooked to, or supported at, the flue outlet.

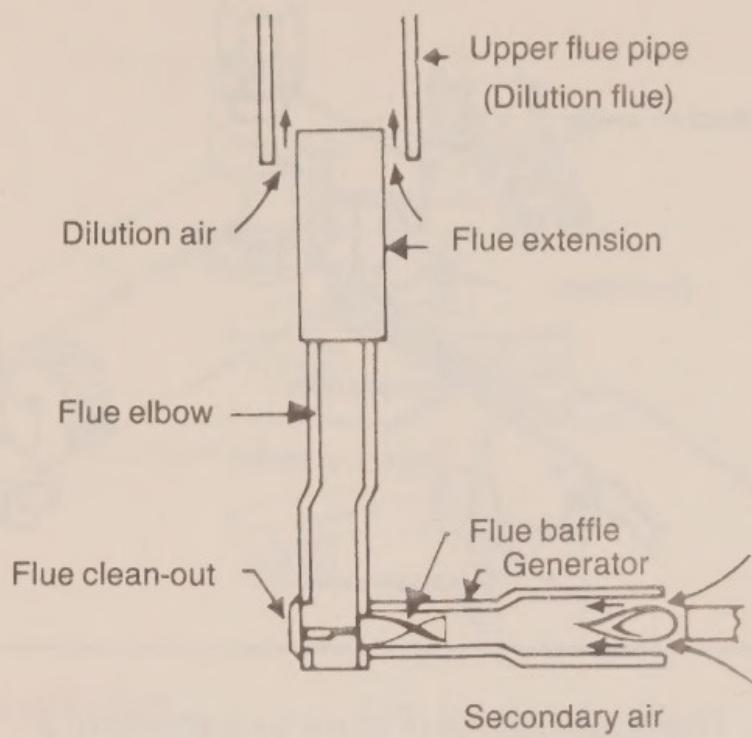
Figure 4 Vertical burner and flue



In the type of refrigerator equipped with a vertical burner, make sure that the flue baffle has not separated from its support wire. (Figure 4)

In refrigerators equipped with a horizontal burner, the flue baffle is removed through the flue clean-out. (Figure 5)

Figure 5 Horizontal burner and flue



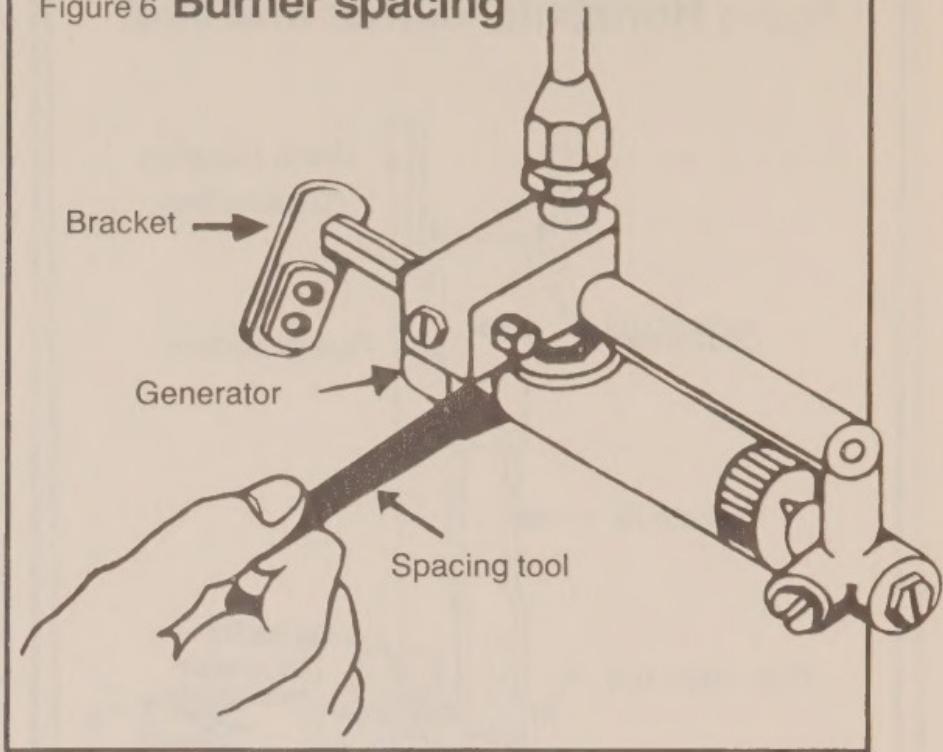
9. Using a long-handled wire brush or a cloth swab attached to a piece of wire, thoroughly clean the flue passage.
10. Clean and replace the baffle and upper flue.
11. Clean all lint and dirt from the pipe cooling fins at the back of refrigerator.
12. Replace the back cover and top grill and move the refrigerator back into position.

To disassemble the burner: (Figure 2)

1. Unscrew the air shutter barrel and mixing tube. Remove the barrel retainer.
2. Clean the opening in the orifice spud with a sharpened match or toothpick. Never use anything metallic for this.
3. Clean all parts and reassemble the burner. Tighten the outer barrel firmly by hand.

Burner spacing is one of the other adjustments which must be correct. Spacing has a direct effect on the supply of primary and secondary air needed for proper combustion of the gas-air mixture. Replace the burner on the bracket in the following way.

Figure 6 **Burner spacing**



- The spacing tool (Figure 6) is made of a 152mm (6 inch) length of 9.7mm (3/8 inch) O.D. copper tubing. Flatten one end until it is 12.7mm (1/2 inch) wide. This makes a combination tool which will give 9.7mm (3/8 inch) spacing on the round end and 12.7mm (1/2 inch) spacing on the flat end. The spacing tool should always be inserted at right angles. The space is measured between the edge of the burner barrel and the end of the generator flue.

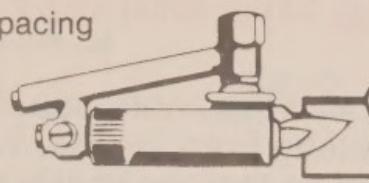
If the burner spacing is less than recommended, the minimum flame may go out, because it does not contact the heat conductor.

If the burner spacing is greater than recommended, the minimum flame may not enter the generator flues. (Figure 7)

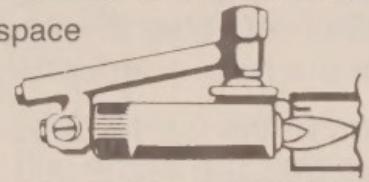
- Proper spacing dimensions are 12.7mm (1/2 inch) for the vertical generator models on any kind of gas, 9.7 mm (3/8 inch) on side-to-side generators on any kind of gas and 12.7mm (1/2 inch) for front-to-back generators.
- Connect all propane lines, turn on the propane supply at the cylinder(s) and — using a soap-and-water solution and a brush — check all connections for leaks. Repair any leaks by tightening connections.

Figure 7 **Burner spacing**

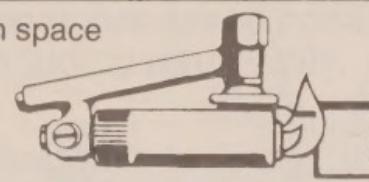
Correct spacing



Too little space



Too much space



## Levelling

The equal distribution of the liquid within the freezing compartment requires the unit to be installed and maintained in a level position, both front to back and side to side. A freezing compartment that is not level results in slow freezing and higher cabinet temperatures.

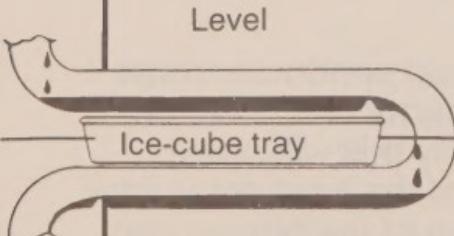
Check the level of the refrigerating unit by placing a small spirit level on the bottom ice-cube tray shelf, front to back and side to side. The tray shelf should be clean of frost or ice.

If a spirit level is not available, place a partly filled ice-cube tray on the bottom ice-cube tray shelf. When level, the surface of the water will be parallel with the top of the tray.

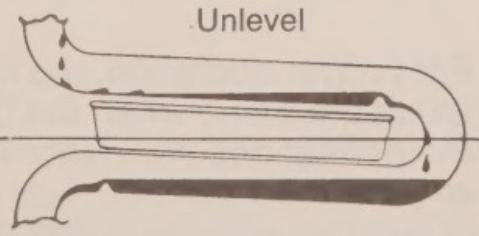
The level of the refrigerating unit may also be checked by observing the thickness of the ice cubes. When level, all the ice cubes will have the same thickness. (Figure 8)

Figure 8 **Freezing compartment**

Level



Unlevel



Use solid shims under the legs of the refrigerator to keep it level. Strengthen weak floors to prevent sagging.

## **Lighting the burner**

The open end of the lighter tube — 3.3mm (1/8 inch) line leading from the thermostat — should be positioned so that the lighter flame contacts the burner shut-off valve disc, as well as the underside of the heat conductor.

The open end of the lighter tube must also be positioned so that the flame will ignite the propane as soon as the automatic shut-off valve snaps open. Allow three or four minutes for it to open.

Hold a lighted match at the open end of the small burner lighter tube. To light the burner lighter, push the button located on the thermostat at the other end of the lighter tube. The lighter flame will burn only as long as this button is pushed.

## **Adjusting the burner flame**

Set thermostat at number 1 position.

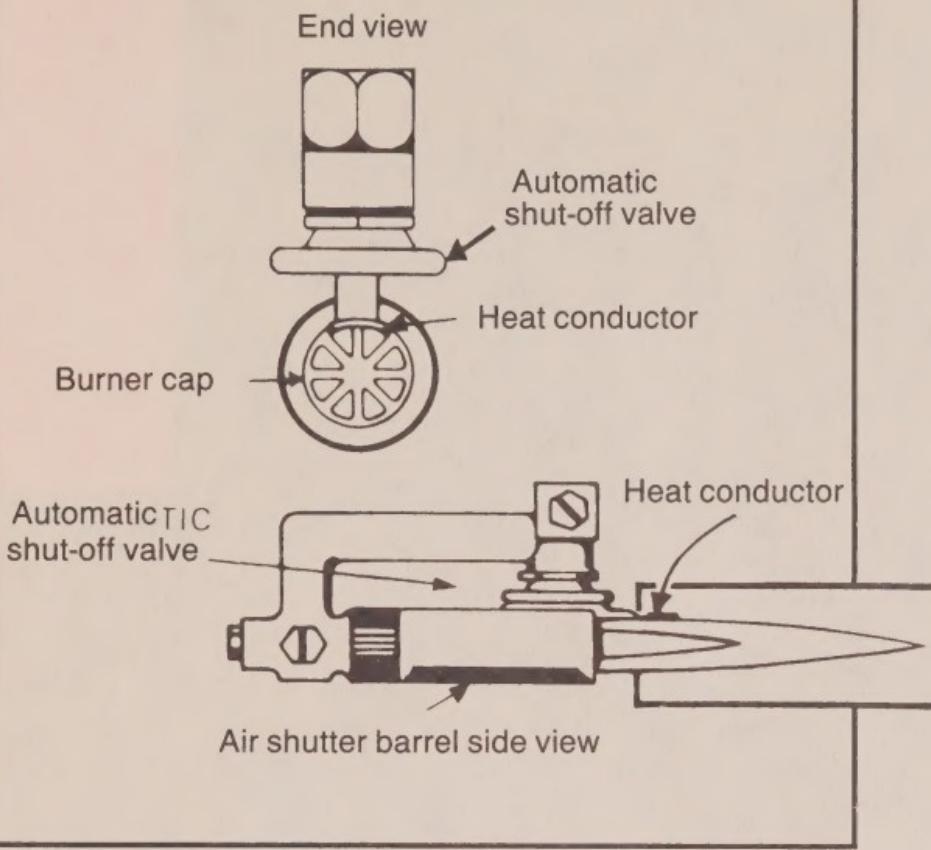
Turn the air shutter barrel counter-clockwise to adjust the flame until it becomes blue, eliminating the white or yellow flame tip. If the desired flame cannot be achieved by turning the barrel a maximum of 6.4mm (1/4 inch), a qualified service person should be called into correct the problem.

Make sure that the flame is entering the flue passage. Cold flues have little or no draft; it is sometimes necessary to assist the flame into the flue passage using a piece of tubing to blow gently into the flue passage opening.

## **Position of heat conductor**

For proper operation, the heat conductor must touch the flame when the thermostat is set on the defrost position. Normally this will occur when the concave surface of the heat conductor is lined up with the inside rim of the burner cap. (Figure 9)

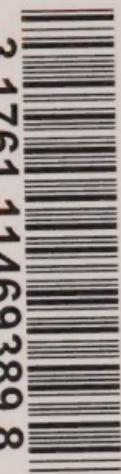
**Figure 9 Heat conductor positioning**



## **For further information, contact:**

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